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PLM2Shopfloor

Closed process chain between virtual environment and physical production

Siemens PLM Connection Americas 2008

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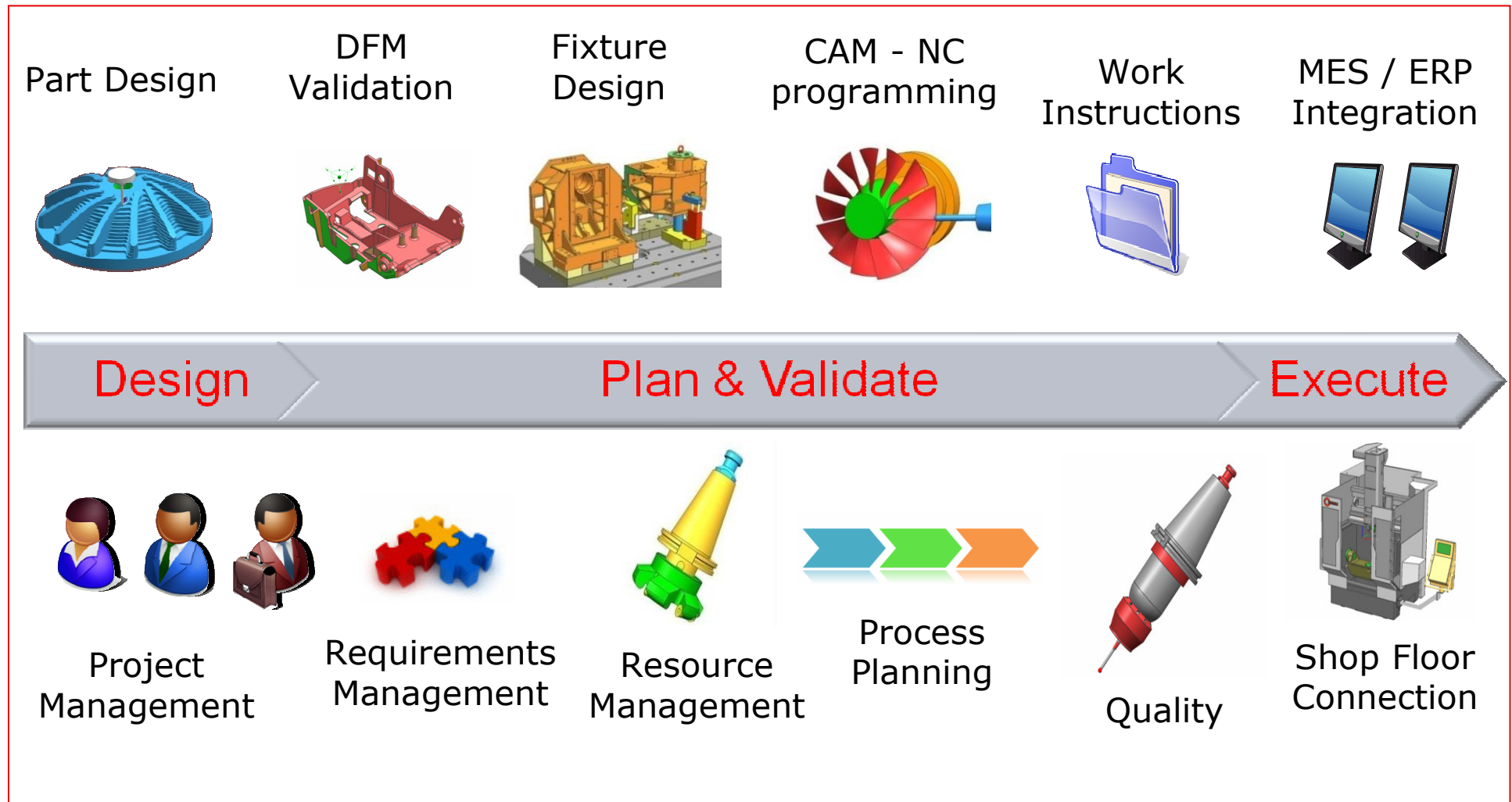
Agenda

- What means PLM2Shopfloor?
- Requirements for PLM2Shopfloor
- Tools for PLM2Shopfloor
- Live Presentation (from the virtual to the physical world)
- Benefits
- Questions and Answers

PLM2Shopfloor means

What means PLM2Shopfloor?

- Essential part of the PLM process!
- Integration of production into the PLM process
- Integration of production data into PLM database
- Transparency and work assistance from PLM tools
- Speed
- To allocate all relevant data for production
- Process support for production
- Workflow support for production
- Single source for all information for anybody
- To assure allocation of released and approved data at any time from Engineering down to Shop Floor
- Direct connection of PLM System to NC control and back



Requirements for PLM2Shopfloor

Market Requirements

- Cost Pressure
- Time to Market
- Flexibility
- Production Batch 1-n
- Complex Business Processes
- Warranty
- Product Liability
- Global Engineering
- Global Production



Production Requirements

- Costs
- Time to Part
- Delivery Reliability
- Flexibility
- Production Batch 1-n
- Workflow Standardization
- Processes
- Transparency
- Traceability
- Minimize Rejection Rate
- Global Production



Actual Status

- Numerous distributed Systems
- Different Data Islands
- High need of Software Interfaces
- Media Brakes
- No standardized Workflows and Processes
- Redundant Data
- Separation of Development and Production
- Complex Communication Structures
- Missing or hesitant Information Flow
- Obligation to Perform
- Different Organizational Structures

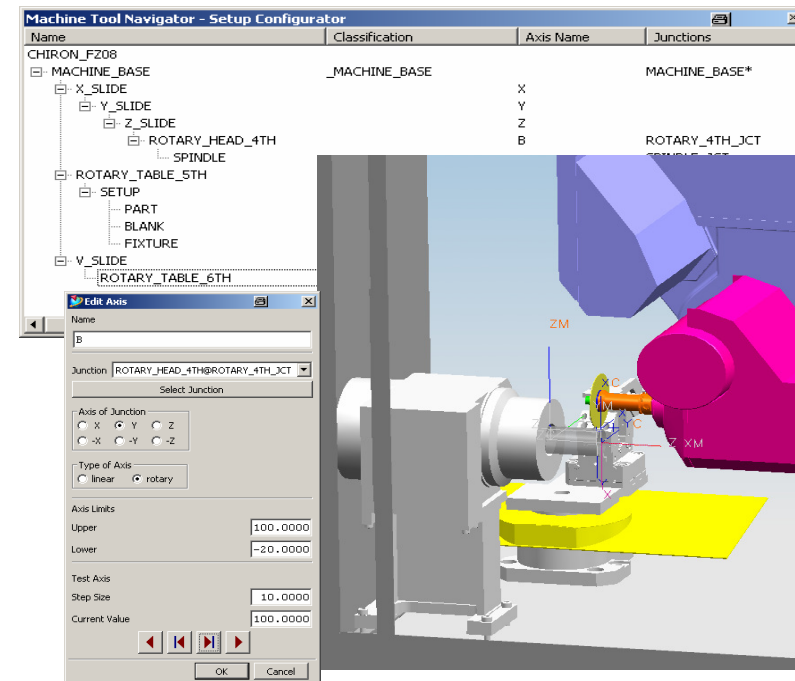
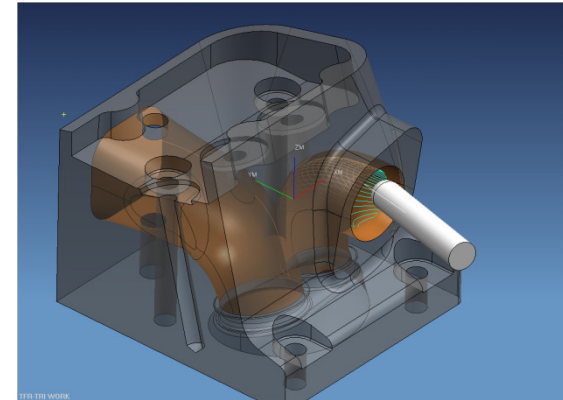
What to do?

- Make the most of an integrated system
- Integration thru
 - Utilization of integrated system, where possible
 - Optimized adaptation of external tools
 - Realize single source approach
- Integration Know How and experience
 - Complementary tools for individual requirements
- Provide internal Know How and resources
- Readjust organization for best PLM process implementation

Tools for PLM2Shopfloor

NX CAM

- Integrated CAD/CAM process
- By 3D execution of real production process
- Reusable Structures (Templates)
- Variety of modules for different manufacturing methods
- Functional, open, upgradeable, adaptable, automated
- Mastermodel structure
- Knowledge based production
- Multi CAD useable



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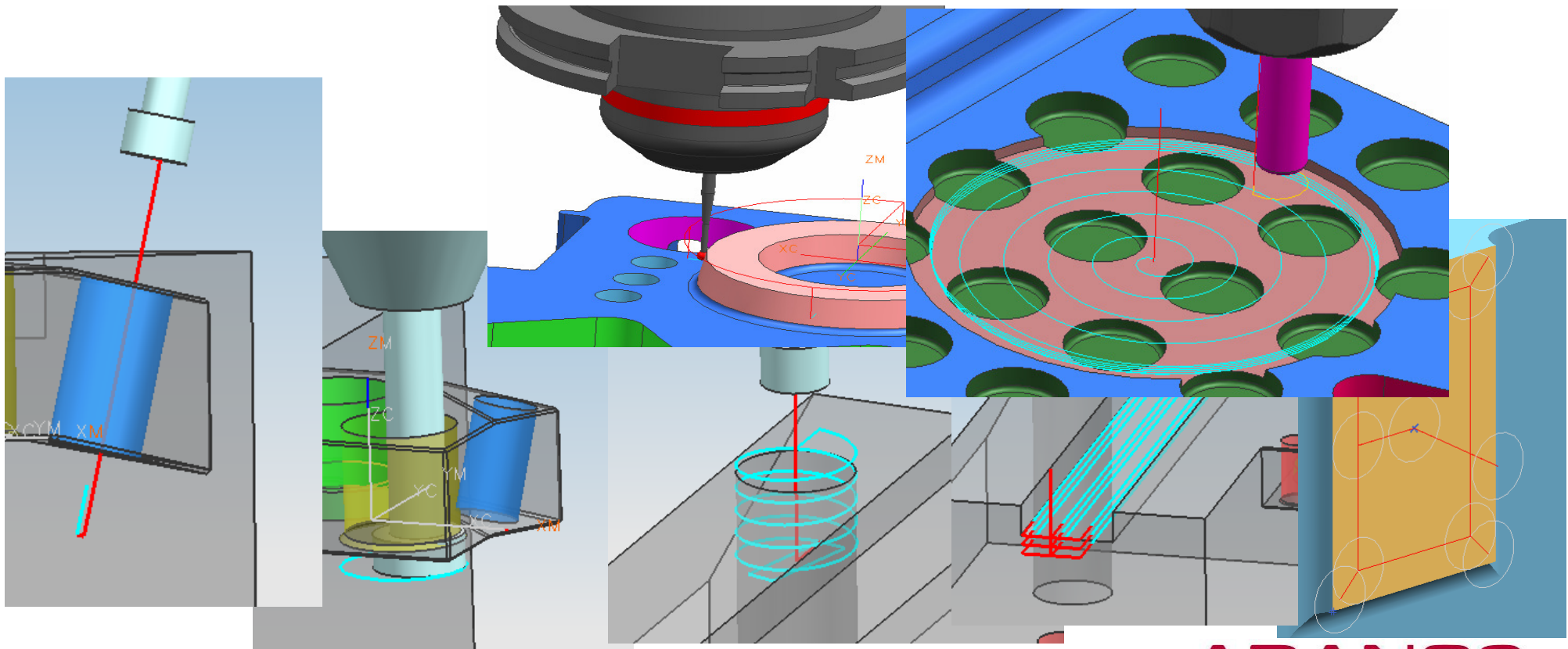


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UserCycle – „Macros“ for individual CAM extensions

General possibility for definition of additional CAM strategies
like machine/user cycles, simple machining operations, probing

Within NX standards with full geometry associativity – user automation tool

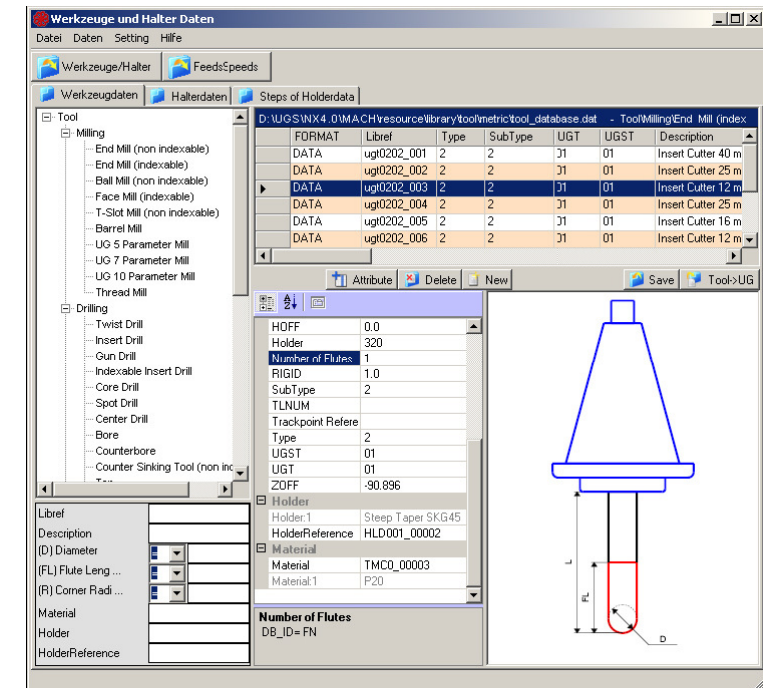


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TechnologyManager

- Fast search over great ASCII data volume
- Administration of components like extensions, holder
- Administration of feeds and speeds and the tool reference
- Administration of additional technology tables and tool attributes
- Direct interface for the actual NX CAM session
- Visualization of the loaded NX® tools and direct load
- Direct tool update
- Impact opportunity of the referenced attributes
- Scalable sizing view of drilling and milling tools
- Categorize of data attributes
- Automatic creation of 3D drilling/milling tools for machine simulation
- Direct display of tooling lists in Word/Excel format incl. 2D graphic
- Possibility to takeover external tool catalogs

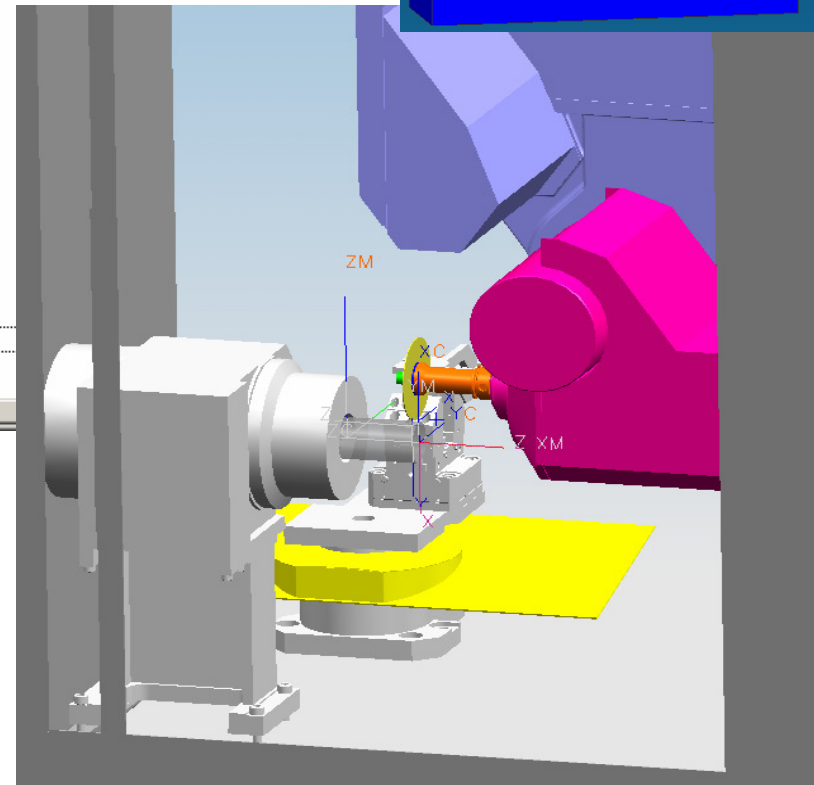
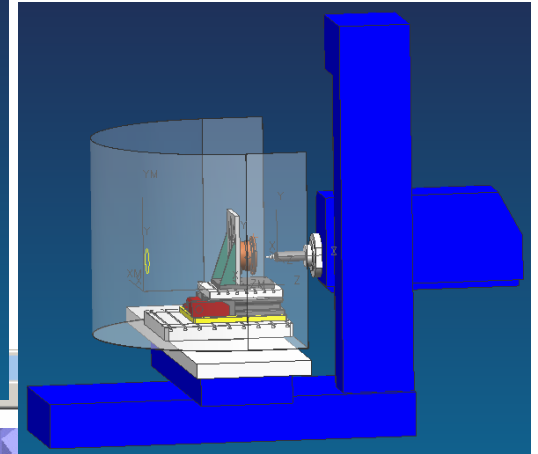
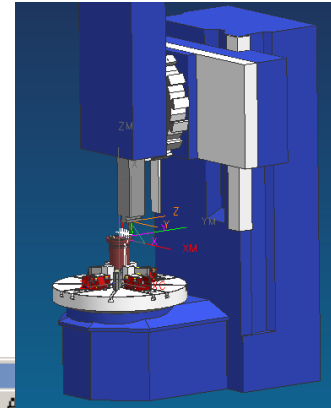
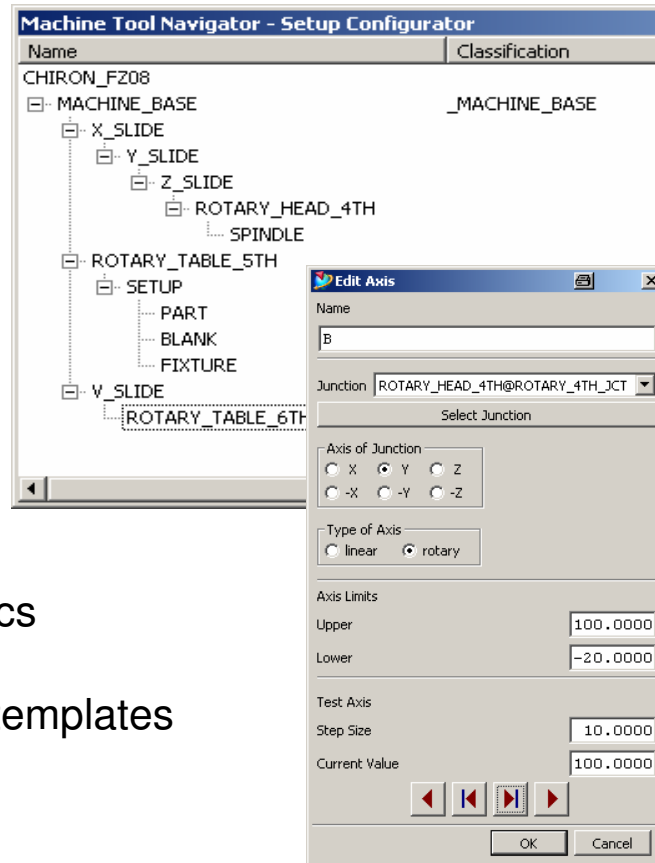


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Machine Kits

- Postprocessor
- Machine model
- Machine kinematics
- Simulation driver
- Machine specific templates



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- Teamcenter Manufacturing Part Planner
 - Integrated part and process planning
 - Manufacturing and Production data management

Direct access to integrated libraries

Graphical process sequencer

Available CAD data

3D view of part model – (with GD&T data)

Assign to Manufacturing Plan

Detail window

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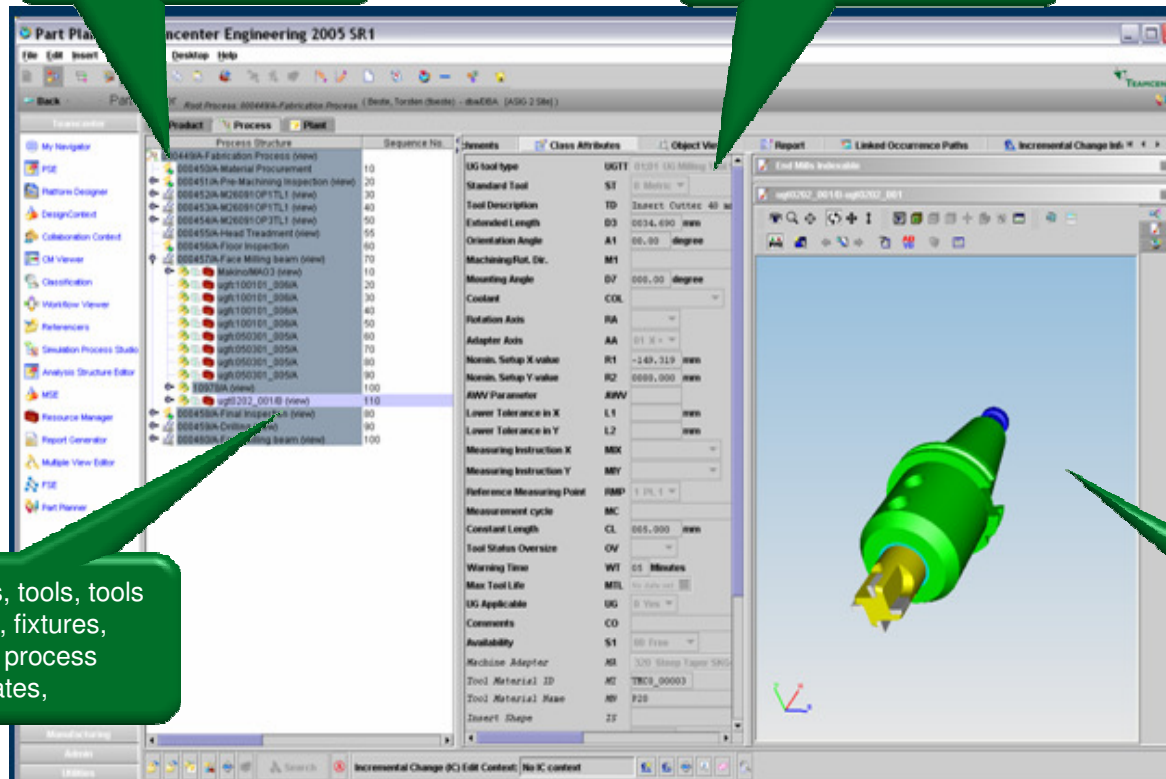
- Teamcenter Manufacturing Resource Manager
 - Integrated resource management

Direct access to integrated libraries

Full parametric search on attribute data

Standard parts, tools, tools assemblies, fixtures, machines, process templates,

3D images of resources

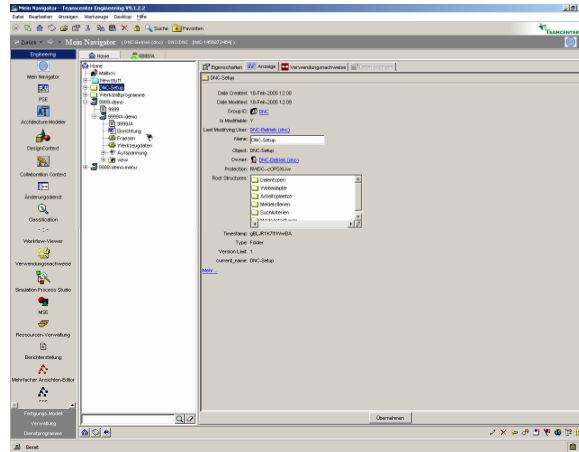


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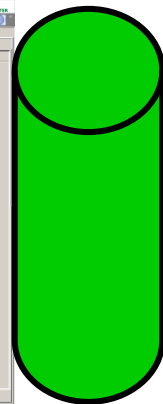


FIT4Teamcenter DNC

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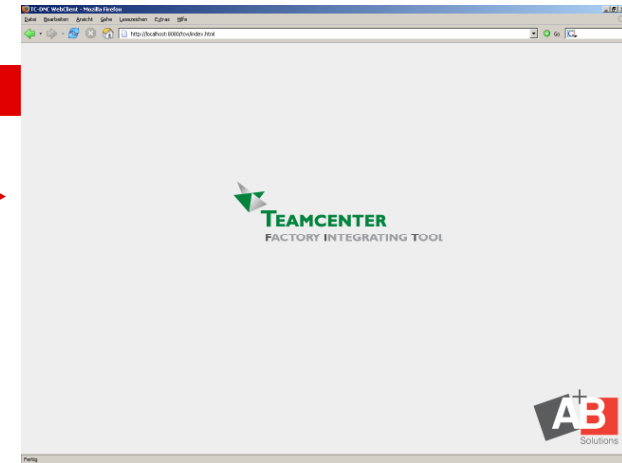
Revisions
Release process
Workflows



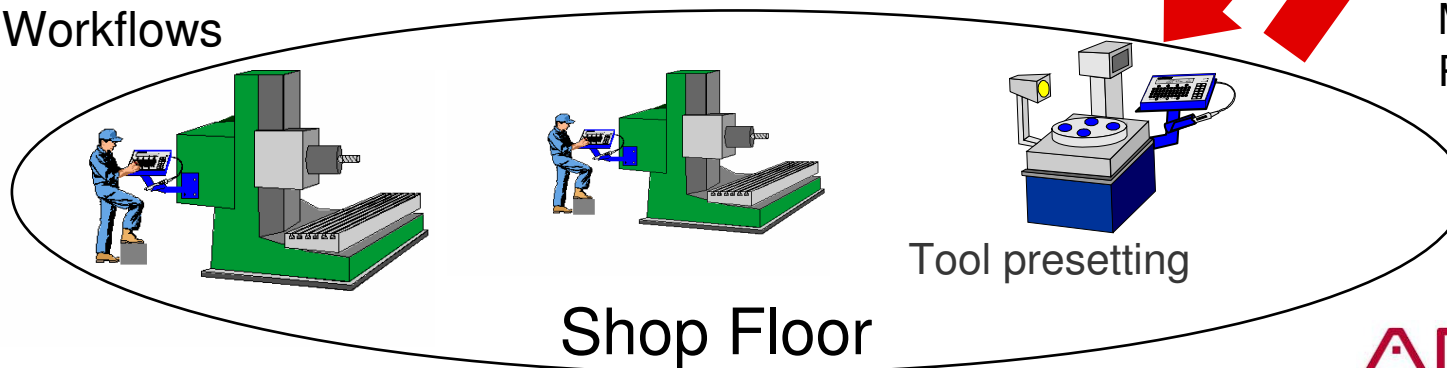
NC-programs
Tool data
Tooling list
ShopDoc
Drawings
3D Models (JT)....

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FACTORY INTEGRATING TOOL

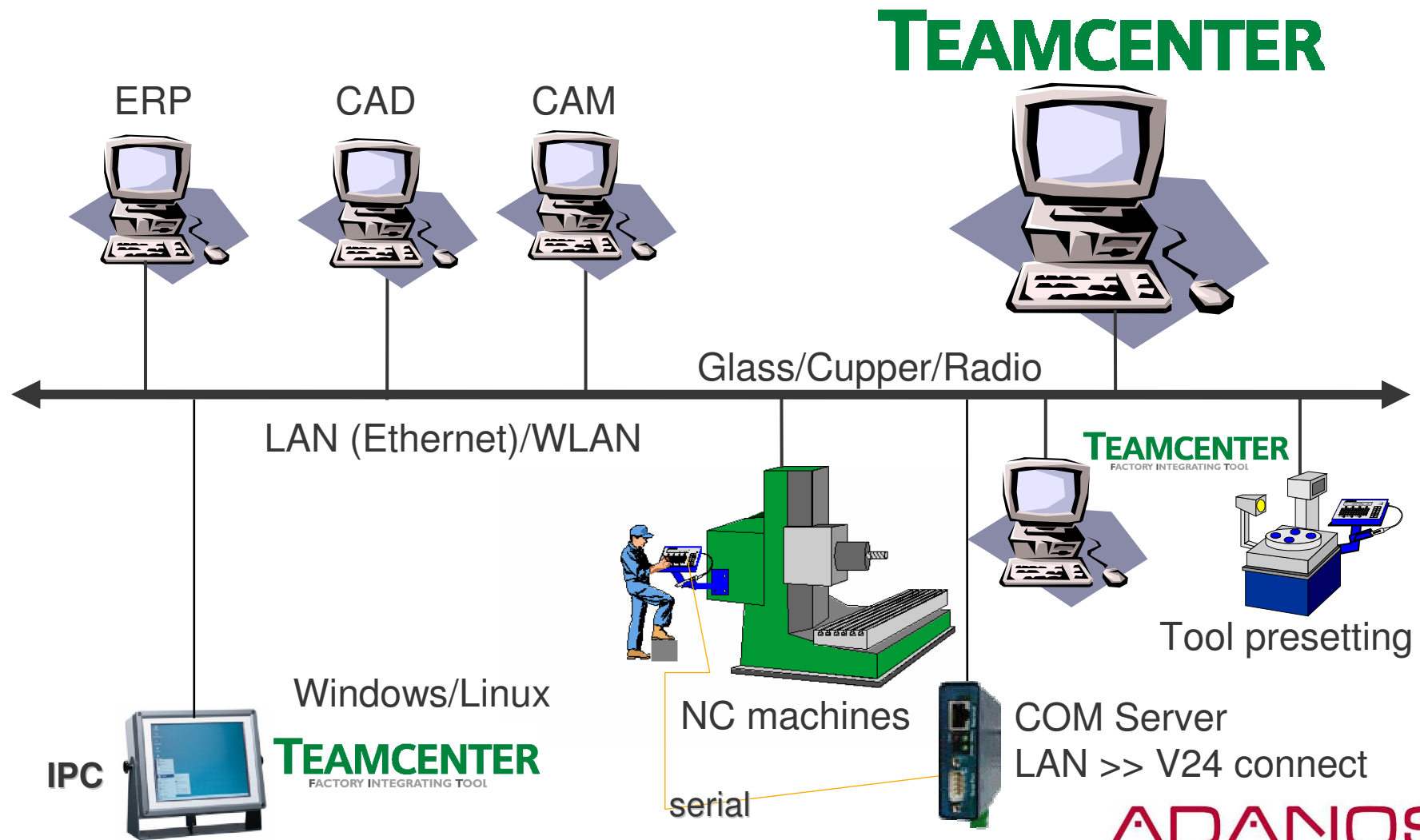


Optimized NC-programs
Actual tool data
Markups (JT)....
Photos



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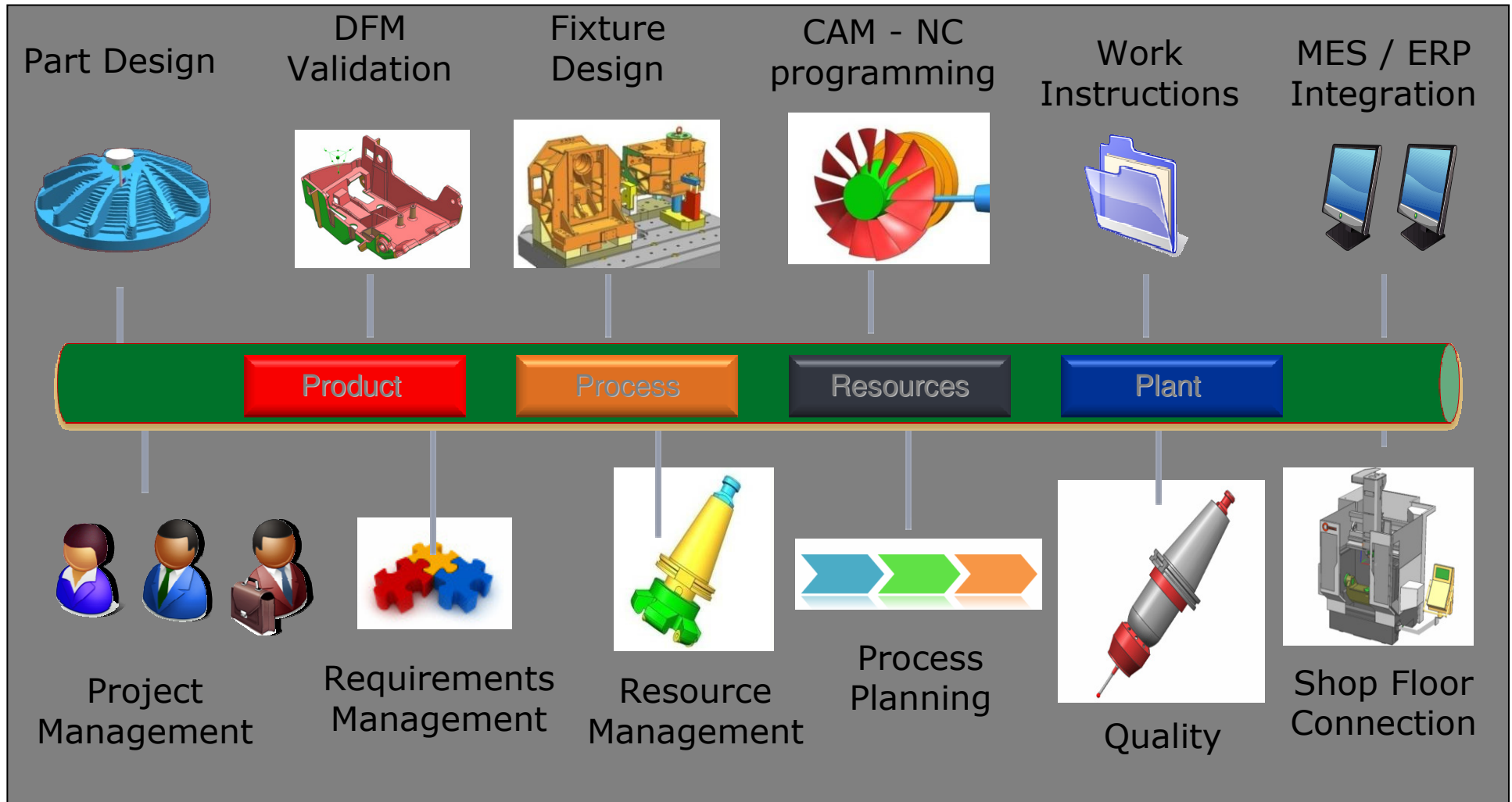
Infrastructure





- Integration of external CAM systems into Teamcenter
- Configurable part data interface for
 - Source data (up to CAM system)
 - NC-programs
 - ShopDoc
 - Tooling list
 - Etc.
- Configurable delivery structure in Teamcenter (MENC Machining item, operation, operation activity, attachments, etc.)
- Configurable dataset structure
- Start of external CAM system from Teamcenter portal (up to CAM system)

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Live Presentation (from the virtual to the physical world)

Benefits

The Production/Shop Floor Benefits

- Integration of production into processes
- Speed
- Secured processes
- One single data pool
- No redundancy of data
- Electronical workflow
- Secured usage of actual and approved revisions from Engineering to Shop floor
- Locked resources/revisions can't be used
- Transparent processes till production area
- Closed process chain
- Thereby higher quality, productivity and delivery reliability

Question and Answers

Thank you for your attention!
Visit our ADANOS both
(A+B, BCT and Janus)